

Catalyst



ACCELERATING RESEARCH

June/July 2010

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Health Services Research



National
Healthcare
Group

Adding years of healthy life

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Adding years of healthy life

Editorial team

Clara Lim, Henry Tan, Siti Zawiyah, Selina Xiao, Wenal Loh, Loi Mee Mum, Adeline Lu, Ng Hwee Hian, Doreen Lim, Yeo Kian Wah, Farah Mohamed Haniff, Norsalleha Bte Salim

From The Editor-in-Chief

Dear Colleagues and Readers,

First of all, the editorial team would like to thank all of you for your great support of Catalyst, the NHG Research Newsletter.

We are very fortunate to receive continuous encouragement from all our colleagues and readers who have contributed articles, and accepted our interviews, which made Catalyst a success. We look forward to greater support from our research communities around Singapore, and we strive to bring to you more highlights and updates of research activities occurring around us.

In this issue, we attempted to share with you another area of research, that are not greatly emphasized in our biomedical industry today. Health Services Research (HSR) is an important integral in the entire spectrum of research, from Bench to Bedside to Patients or Population.

It is a down-to-earth ground means to evaluate the efficiency of the system, and assess the effectiveness of new discoveries, modalities, drugs and devices in the larger patients pool or population. Through HSR, we can better understand how the system functions, and how can we improve practices as a whole to benefit all our patients.

It is our pleasure in this issue to invite National Healthcare Group Health Services & Outcome Research (HSOR) Division to share

about HSR, and Professor David Matchar from Duke-NUS to share with us this insights and thoughts on HSR, and a little more about himself, through an exclusive interview in our new series of "Knowing our Healthcare Leaders".

I am also glad to have Dr Ooi Chee Keong, our CLR Programme awardee, share about his journey into doing health services research at the emergency department. I hope that his honest opinion about how he overcame the initial hurdles will boost confidence and courage for other clinicians to follow suit. Finally, you will also find an introduction about Qualité, the quarterly newsletter by the Research Quality Assurance Unit that seeks to inform the research community about compliance events and promote responsible research practices. For our Clinical Research Coordinators, we have also included an update article on Career Development Plans. The career plans were shared at the March Clinical Research Coordinator Society forum by our invited speaker Ms Nancy Tan (MOHH). Training wise, we have also included updates on the inaugural audit and project management courses, newly launched this year.

I hope you will enjoy reading the Catalyst and look forward to having your feedback.

Yours Sincerely,

Kin Poo

Your Newsletter, Your Comments

Do you have any of these:

- Research articles to share?
- Research topics that you want covered?
- Comments/Feedbacks on published contents of this newsletter?
- Comic strips/cartoon illustrations that is science/research-related that can bring smiles to your colleagues?

If you have answered "YES" to any of the above, we invite you to write in and share with us your thoughts, feedback on published articles or cartoon clips (original materials, jpeg format please).

And if your contribution is accepted for print, we will send you a token of

Modes of contribution:

By Mail

Editorial Team – Catalyst Newsletter
Research & Development Office
National Healthcare Group Pte Ltd
6 Commonwealth Lane
#04-01/02 GMTI Building
Singapore 149547

By Email

rdo-rtdu@nhg.com.sg

appreciation, with compliments from the Editorial team!

Do remember to add in your contact details, where applicable, for our future communications with you.

The Editorial Team



Providing the evidence behind your decisions

What is Health Services Research?

“Health Services Research (HSR) is the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect quality, cost, utilisation and access to health care. The research domains involved include individuals, families, organizations, institutions, communities, and populations.” (AcademyHealth, 2000)

HSR includes applied epidemiology and real world inquiry where the classical methods of clinical trial design may not be feasible and requires risk adjustment to account for different factors. It provides a systematic and scientific approach to outcome measurement and of how best to deliver appropriate and cost-effective care. HSR also seeks to understand perceptions, values and health literacy of people that are associated with certain attitudes and health-seeking behavior. It provides quantitative measures through various decision and management science methods that permit informed decisions.

It also uses secondary research techniques to identify, critically appraise, and synthesize published evidence to support planning. While HSR is grounded in theory, it does research that can be applied by clinicians, nurses, health managers and administrators, and other people who make decisions or deliver care; HSR provides the evidence for their decisions and practice.

Health Services & Outcomes Research (HSOR) department

In National Healthcare Group (NHG), the HSOR department was established in 2005 with the mission to improve quality of healthcare by providing the best available evidence for decision making, knowledge translation, build capacity and advance knowledge in HSR. We work with the institutions to identify issues, questions and challenges facing them, keeping work attuned and relevant to the needs of the various stakeholders.

Today the department has 17 researchers who are trained in medicine, epidemiology, public health, nursing, physiotherapy, medical informatics, statistics, operations research, economics



and sociology. The background in multiple disciplines enables the study of issues that cut across the spectrum of healthcare delivery in different healthcare settings. Our research findings are disseminated through publications, conference presentations and newsletters. The Health Services Research (HSR) thematic issue (2009) in the *Annals, Academy of Medicine, Singapore*, received major contributions from the department, marking its dedication to advancing the science of HSR, and actively disseminating valuable HSR findings.

Multiple disciplines and methods

The department's research areas include Evaluation Research, Systematic Reviews and Health Technology Assessment, Health Information Management, Health Economics, Geographic Information System and Operations Research.

Evaluation Research determines the impact and value of a policy, practice, program or intervention on outcomes considered by patients and care providers as most important. Ideally the evaluation plan is incorporated into the overall program plan, with clearly identified outcome measures and a rigorously designed methodology to draw meaningful and unbiased conclusions on the program's impact. Evaluation of outcomes includes appropriate study design, primary or secondary data collection, surveys or clinical notes review thereby relying both on quantitative and qualitative methods. Systematic Reviews (SR) and Health Technology Assessment (HTA) studies identify, appraise and synthesize high quality research evidence from primary studies to evidence-based healthcare and decision making. Health Information Management (HIM) is the practice of maintenance and management of healthcare data by traditional and electronic

means in hospitals, which includes clinical, epidemiological, demographic, geographical, financial, reference, and coded healthcare data. Health Economics guides policy formation by informing decisions regarding resource allocation with greater prudence under tight budgetary conditions. System level economic incentives help to influence discrete behavior at the individual level to improve quality of care of providers and behavior of patients. Geographic Information System (GIS) provides location intelligence using spatial technology and methodology for healthcare planning such as improving health access and reducing service gaps. Operations Research (OR) uses mathematical techniques of stochastic and optimization modeling to help decision making to improve operations.

HSOR studies

Our research studies can be classified into four areas, each with a case study summary as follows:

Management of diseases and conditions

Prevalence of vascular complications in Type 2 diabetes patients at public primary care clinics in Singapore.

Coronary artery disease (CAD), stroke and nephropathy are preventable complications of diabetes mellitus. The aim of this study was to determine the prevalence of these conditions among patients with Type 2 Diabetes Mellitus (T2DM) from NHG polyclinics. A cross-sectional study has shown that the prevalence of these conditions increased with age with different ethnic predominance. Thus, it is imperative to control cardiovascular risk factors well, especially in younger T2DM patients, to reduce the development of micro- and macro-vascular complications over time.



Organization and delivery of services

Using spatial accessibility to identify polyclinic service gaps and volume of under-served population in Singapore using GIS.

Primary care services are the first level of contact between community and the national health system, providing the continuity of care. As accessibility to primary healthcare facilitates overall population health, it is important to address spatial inequality that exists in a healthcare system and identify services gaps, if any. A national database containing 3.6 million polyclinic visits in 2006 was geo-analyzed and it was revealed that Jurong West and Sembawang were areas with lower spatial accessibility to polyclinic services. Future efforts in polyclinic planning should take this into consideration to maximize patient benefit.

Health and welfare economics

Impact of an ageing population on government healthcare expenditure in Singapore.

Singapore is unique amongst developed countries in achieving excellent health outcomes at a low fiscal cost. In 2005, healthcare expenditure was 3.7% of Gross Domestic Product (GDP), of which 25% was government expenditure. With an ageing population, we projected that the government expenditure will be 3.4% in 2050, which is lower than countries with a similar population ratio of 65 years old and above. Sensitivity analysis showed that higher fertility rates will have little impact while medical inflation and the rate of expansion of healthcare services such as new surgical procedures or drugs will significantly influence public healthcare spending. Though ageing will increase our public health burden, the government can play an active role through prudent assessment of new health technologies and effective cost containment.

Research design and methodology

Measuring co-morbidities in older patients: Can administrative data replace medical records data in outcomes research?

Co-morbidity information is important for risk adjustment when comparing health outcomes. Collection of this information from medical records is resource intensive, and while administrative databases provide a ready alternative, they lack validation. We compared co-morbidity measures from both sources and observed their performance in a real-world example of risk adjustment. A retrospective review of older patients hospitalized for pneumonia at 3 acute hospitals showed that co-morbidity information generated from either data source did not result in a significant difference in risk-adjusted mortality of community acquired pneumonia. This suggests that administrative data may be used to identify selected co-morbidities, as there was reasonable agreement with medical records data, making data collection less cumbersome.

Our healthcare providers continuously face the challenge of providing quality healthcare while containing the cost and making it accessible to all. HSR is well-placed to support this endeavor through evidence-based studies of policy, research and practice. HSOR has, and will continue to provide the evidence behind the decisions of stakeholders, which will ultimately contribute to improve the health of our population.

More information on HSOR can be found at www.hsor.nhg.com.sg



Email interview with

Professor David Matchar

Professor and Director, Health Services & Systems Research,
Duke-NUS Graduate Medical School Singapore

David B. Matchar, MD, is Professor of Medicine at Duke University and Inaugural Director of the Program in Health Services and Systems Research at the Duke-National University of Singapore (Duke-NUS) Graduate Medical School. Professor Matchar has 25 years of experience in academic clinical policy analysis and development, and clinical practice improvement.

In August 2009, Professor Matchar was awarded the prestigious STaR Investigator Award by the Singapore Ministry of Health's National Medical Research Council (NMRC) and the Agency for Science, Technology and Research (A*STAR), to establish an integrated community effort to improve dementia care in Singapore.

Professor Matchar's research interest is clinical practice improvement - from the development of clinical policies to their implementation in real world clinical settings. Professor Matchar has worked in a wide range of clinical content areas, including disabling neurological conditions, cardiovascular disease and cancer prevention. His recent major focus is on cerebrovascular disease.

Through this email interview, we are delighted to have Professor Matchar share

with us his personal insight on health science and outcomes research.

What are your thoughts on the current awareness of health services research in Singapore?

Health Services Research (HSR) aims to improve the performance of the healthcare system, and by its nature a broad and changing field of research. It is not a single discipline in the traditional sense, but draws from a range of disciplines - medicine, economics, sociology, epidemiology, and statistics. So, it is no surprise that many people are not quite certain what we do. That said, Singapore embraces change, and people here are receptive to using a scientific approach to guiding the evolution of healthcare.

Is there a simple analogy that you could use to describe Health Services Research to the lay clinician?

One analogy to academic Health Services Research is academic engineering research, say civil engineering. Civil engineers are involved in building bridges, skyscrapers, stadiums and so on. A research civil engineer generally works in a university and asks how to create new types of structures that will serve human

needs, can be constructed and maintained at reasonable cost, and not fall down.

That's what we do - we are university scientists who ask how to create a healthcare system that will serve human needs, can be constructed and maintained at reasonable cost, and will not fall down.

What do you think are the key achievements of Duke-NUS in the area of health services research?

A key achievement is the rapid development of a robust and high-quality department. We have been able to attract talented researchers who recognise the opportunity Singapore presents for HSR, as well as the rich intellectual environment at NUS and other academic institutions. Dr Eric Finkelstein, our Deputy Director, is an accomplished senior health economist, internationally recognised for his work in the economics of obesity and chronic disease.

Dr James Thompson, a specialist in System Dynamics modeling with a long and accomplished career in applying modeling to complex health issues, has joined us as head of the Health Systems Computational Sciences Laboratory.

Dr Young Kyung Do is a physician and health services researcher who studies the



“Singapore embraces change, and people here are receptive to using a scientific approach to guiding the evolution of healthcare.”

resource impact of chronic diseases, such as labour effects, as well as innovative strategies for providing integrative care for individuals with complex and chronic diseases.

We also have been able to draw on existing researchers in Singapore to develop a coherent research agenda. For example, Dr Angelique Chan, a sociologist and demographer specialising in the challenges of an ageing population, including the needs of caregivers, bridges the NUS Faculty of Arts and Social Sciences and Duke-NUS.

A second area of achievement has been attracting external funding for unique research efforts, including the A*STAR award to establish a laboratory in Singapore for health systems computational science. A primary goal of this work is to engage decision makers in the process of examining complex problems related to health care, using tools of computer simulation. We are initially focusing on the growing problem of dementia in Singapore associated with an ageing population. In effect, we create a representation of our interactions between the various players and resources in the health system to better understand when things go wrong, and examine the potential impact of

proposed interventions before we make expensive mistakes.

What is it about Health Services Research that keeps you interested?

Health Services Research provides an endless supply of fascinating puzzles whose solution can actually make a difference. How do we reduce the risk of stroke and heart disease? What should the next generation of medical services look like? How do we most effectively engage individuals in their own health? What would it take for a new technology to be of value in the real-world? There is always something new.

What do you like most about your job?

What I most like about my job are the people I get to work with. They are smart, capable, and love their work.

How do you find time for your family?

My children are grown up and living in different parts of the planet. I have a son in Haiti doing reconstruction work, a son in the States, Vermont, finishing college, and my oldest daughter is a travel writer and works mostly in the US, Canada, Mexico, and Central America. I make time on most long-haul travel to see them or arrange

for them to come to Singapore for a few weeks. Finding time mostly means finding the right time zone for phone calls.

What do you like to do in your spare time? Do you have any hobbies?

In my spare time I enjoy cooking and sharing good food with friends, and reading. One hobby I have returned to since moving to Singapore to is scuba – this is a great region for diving.

Does your personality and love for your hobbies help in making decisions and passions in your daily work?

My hobbies keep me refreshed and better able to keep focused at work. It's a great meditation to float weightless above a coral reef or to patiently stir a risotto.

How do you handle the tight demands of your schedule?

I have a wonderful staff who points out when I'm over-doing things – I try to back off a bit, take a walk or go to the gym. But when you love what you do, it's hard to see your schedule as demanding.

NHG-NUS Clinician
Leadership in Research CLR Programme

Health Services Research in the Emergency Department



Dr Ooi Chee Keong
Associate Consultant, Department of Emergency
Medicine, Tan Tock Seng Hospital

How the journey began...

I am honoured to be conferred the Clinician Leadership in Research (CLR) award in 2009. The beginning of this journey was inspired by an idea mooted by senior colleagues in my department. At that time, the Emergency Department (ED) of Tan Tock Seng Hospital had just started a pilot project on transferring stable elderly patients who require rehabilitation directly from ED to step-down care facilities. Even though this intervention has been practiced in the UK and US for some time, it was a relatively new concept in Singapore. The research question was to assess the effectiveness and feasibility of implementing such a program in Singapore. For a junior clinician with limited experience in research, the grant call for the CLR and

the existence of an important research question provided an opportunity for me to improve my grasp on health services research.

Learning by doing...

The application process for the CLR award was in itself an invaluable experience. The proposal development started with the need to find a research question that was relevant and timely. Just by having a topic of interest was not sufficient to form the research question. The final research question was only reached after an extensive search of the literature and finding the gaps in knowledge. The second step was to find the appropriate study design for the research question. The best design to answer the research question might not be the most practical or feasible one in practice. A well-designed observational study could produce more valid results compared to a poorly conducted randomized controlled trial. The third step involved choosing the most appropriate statistical analysis for the data and finally, the writing up of the study findings for the purpose of dissemination. Aside from the proposal development, another important practical skill that I have gained was project management. This included planning the budget for project staff and consumables, forecasting realistic timelines and

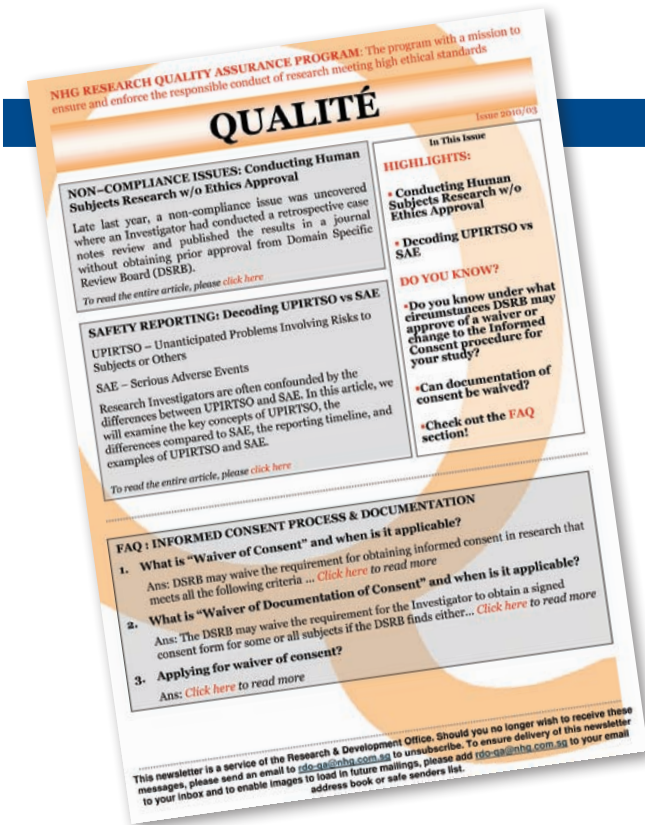
considering fallback plans for potential problems.

The final stage of the preparation was also the most daunting experience. It was the peer review session where I was to pitch my project in front a distinguished panel of senior researchers who were to decide on the winners of the award. Far from being intimidating, the panel gave constructive advice based on their rich experience in clinical research. Another important aspect of the CLR Programme was the pairing up of the awardees with a mentor. The exchange of ideas and experience was an essential way to impart knowledge, as well as avoid repeating past mistakes.

How will the journey end...?

Upon the completion of my study, I hope the findings will have a positive impact on the patients, hospitals and the healthcare sector. Results favouring the new initiative will not only provide one of many solutions to the problem of access blocks in the hospital, but also to ensure that elderly patients receive the most appropriate and targeted care.

My journey will not end with the completion of the study. The CLR Programme has equipped me with the essential skills to make further contribution to the field of health services research.



Qualité

The **Qualité** (pronounced “KA-ley-TAY”) is a quarter-yearly newsletter launched in July 2009 by the Research Quality Assurance Unit that aims to channel relevant information and tools to help develop a culture of ethical and responsible research in the research community.

Past issues covered topics such as Essential Documents, Informed Consent Process and Documentation, Waiver of Consent, and Reporting of Unanticipated Problems Involving Risks to Subject and Others (UPIRTSO). Cases of research Non-Compliance in the institutions were also presented to help inform the research community of potential events or incidents that may be at risk.

The **Qualité** may be viewed online at <http://www.research.nhg.com.sg/Qualite.htm>

NHG has a New Research Website! www.research.nhg.com.sg

Use these shortcuts to bring you to where you want faster.

“Login” brings you to the B2BResearch Online submission to DSRB.

NHG’s research website has undergone a facelift. The layout and content have been reorganized to be more user-friendly so that you can find the information you need quickly. Over the next few months, more functionalities will be added to our website. If you have any feedback or suggestions on what you would like to see, do drop us a line (email: B2BAdmin@nhg.com.sg).

Help us to serve you better!

Broaden your knowledge with one of our many training courses here.

See the latest Announcements, News and Events at a glance.

Download our Guidebooks, Templates and Forms here.

With our social bookmarks, you can now share your favorite links online.



13th CRCS Forum Research Staff Career Development (RSCD) Task Force and CRCs Career Development Plans

The low retention rate of Clinical Research Coordinators (CRCs) is a persistent problem in many healthcare institutions in Singapore. Factors that may have contributed to this issue include a lack of a clear career progression plan, a steep learning curve, nature of term contracts, instability of permanency of research grants to pay manpower cost and a high incidence of poaching within the industry.

To address this burgeoning problem, the Research Staff Career Development (RSCD) Task Force was established in November 2008 with representation from highly experienced CRCs from the health systems, offices of research personnel, MOH Holdings (MOHH) Human Resource, research operations management from Singapore Clinical Research Institute (SCRI) and consultants with site-based clinical research experience. The RSCD Task Force started the development with a review and blending of existing job titles, roles and responsibilities for personnel serving in CRC positions at Singapore General Hospital (SGH) and the NHG cluster. Together with opinions from experienced CRCs and cluster HR representatives, a 5-level career path for CRCs was drafted.

In parallel, existing training and education programmes, including those offered by the public and private local institutions as well as online and international programmes were reviewed. The RSCD Task Force made initial recommendations for training requirements and specified requisite competencies at all 5 levels of the CRC career path and identified gaps (if any) that are currently not met.

Based on the findings, the Task Force submitted a paper to Biomedical Sciences



(BMS) Executive Committee (Exco) in June 2009 for the endorsement of a Joint Committee to continue the work initiated by the group.

The Joint Committee, co-chaired by Dr John Rush (CEO, SCRI) and Ms Nancy Tan (HR Director, MOHH) has a member composition that includes representatives from the offices of research, HR departments, clinical trial units and SCRI. Feedback from Clinician-Investigators is continually sought after.

The key objective of the Joint Committee is to make recommendations for a nation-wide and harmonized career path for CRCs with distinct job titles and defined sets of responsibilities, skills and competencies. In addition, the Task Force will recommend essential training and education requirements for CRCs in order to help them integrate faster into their roles. Salary structure,

staff compensation and benefits are not addressed by the committee.

At NHG's 13th Clinical Research Coordinators Society (CRCS) Forum held in March this year, Ms Nancy Tan unveiled an outline of the CRCs career stages that the Task Force has developed, namely the Associate CRC, CRC, Senior CRC, Lead CRC and Manager of Clinical Research. Ms Tan also shared the job responsibilities, the qualifications and working experiences required for each career stage. The Forum concluded with the encouragement for the participants to share their experiences, and future developments in the industry, as well as to suggest aspects that would attract them to remain within.

The work of the Joint Committee continues; with the current stage being the collation of numbers of existing CRCs nationwide.

NHG Research & Development Office's Inaugural Events



Audits, Inspections and Monitoring Preparation Workshop

(30 April 2010)

The Research & Development Office (RDO) ran the inaugural Audits, Inspections and Monitoring workshop on 30 April 2010. Audits are an integral part of clinical research and ensure the validity of research data used for analysis and discussions. In order to maintain the integrity of the audit process, auditors are necessarily independent of the trial sites. This course provided more than 30 research administrators with an insight on how to prepare for audits, inspections and monitoring visits. The workshop was well-received and participants benefited greatly from the lectures by Ms Sumitra Sachidanandan (Compliance Inspector, Health Sciences Authority (HSA), Ms Catherine Colot (Project Manager, Lundbeck), and Ms Selina Xiao and Ms Doreen Lim (Quality Assurance Unit, National Healthcare Group).

Participants' feedback on the course was generally positive. Many found the trainers to be good, resourceful, and know their subjects well. The RDO training team has evaluated the participants' feedback and is working to add greater value to the next run of this workshop.

Project Management & Practical Tools for the Research Team Workshop (6 & 7 May 2010)

The inaugural Project Management & Practical Tools for the Research Team was successfully held at the Khoo Teck Puat Advanced Surgery Training Centre, NUH on 6 & 7 May 2010.

A total of 47 participants from both healthcare institutions and pharmaceutical companies attended the intensive 2-day event that covered topics ranging from overview of project plan, budgets, audits and inspections, to soft skills.

A stellar line-up of speakers from key players in the clinical research industry shared their experience and valuable knowledge with our participants from different backgrounds. We were honored to have with us Dr Yeo Jing Ping (Associate Director, Global Project Management, Asia-Pacific, Quintiles East Asia), Dr Gerard Ong (Portfolio Director, PAREXEL International), Ms Jill Wong (Clinical Project Manager, Lundbeck), Mr Roy Toh (Assoc Dir for Quality and Performance, PAREXEL International), Dr Helen Isaac (Project Management Associate, Singapore Clinical Research Institute), and Mr Chan Peng (Director, Research2Trials Clinical Solutions).

The participants were also given a chance to put their newly-acquired knowledge into practice through in a refreshing hands-on out-of-classroom workshop experience over afternoon tea.

Here's what our participants had to say about our speakers

“Engaging & dynamic.”

“Competent, knowledgeable and able to conduct the presentations in a interesting and humorous manner.”

“All experienced & willing to share experiences and stories with us.”

Stay tuned to www.research.nhg.com.sg for the highly anticipated re-run of these courses!

Event Highlights



The National Healthcare Group Singapore Guidelines to Good Clinical Practice (SG-GCP) Course



speakers from Health Sciences Authority (HSA), National Healthcare Group HQ (NHG HQ), Institute of Mental Health (IMH), National University Health System (NUHS), National University of Singapore (NUS), as well as Novartis, Maccine and Johnson & Johnson were invited to conduct the course.

Good Clinical Practice is a standard for the design, conduct, performance, monitoring, auditing, recording, analyses, and reporting of clinical trials that provides assurance that the data and reported results are credible and accurate, and that the rights, integrity, and confidentiality of trial subjects are protected. All clinical trials in Singapore conforms to the Medicines (Clinical Trials) Amended Regulations 1998 and the Singapore Good Clinical Practice (GCP) Guidelines 1998.

NHG held its SG-GCP course on 29 & 30 April 2010, and was well attended by 93 participants from the healthcare institutions, academic institutions and pharmaceutical industry. A total of 13

The course has been tailored for the Principal Investigators, Clinical Research Coordinators, Research Assistants and supporting members of Clinical Research teams. The two-day program consisted of both lectures and panel discussions.

Participants were introduced to the principles of International Conference on Harmonisation (ICH) GCP, the Research Ethics Framework, Pharmacovigilance in Clinical Trials, Responsibilities of the Investigator, Responsibilities of the Sponsor, Informed Consent, Legal Framework for Clinical Trials and Legal Risk Management for Clinical Research, Managing Investigational Products, Essential Documents, Quality Assurance and Fraud & Misconduct in Clinical Trials.

NHG RDO Training Calendar

Date	Time	Training Programme	Course Category	Course Module	Venue	No of Seats
6 Aug	0845-1700	Subject Recruitment Workshop	Subject Recruitment	RM108E	SPRING Singapore	30
13 Aug	0900-1630	NHG Proper Conduct of Research Workshop for SC – Advanced I	Proper Conduct of Research	PC301	Ren Ci Hospital and Medicare Centre Training Room 401, Level 4	30
20 Aug	1200-1400	14 th Clinical Research Coordinator Society Forum	Clinical Research		TBC	100

For registration and full details, please visit www.research.nhg.com.sg/Search-for-Course.htm